DOCUMENT RESUME

ED 170 358 TM 008 808

AUTHOR Fish, Owen W.
TITLE An Analysis of the Evaluation Data When ESEA, Title 1 Evaluation Models A1 and A2 are Empirically Field Tested Simultaneously.
PUB DATE Apr 79
NOTE 11p.; Paper presented at the Annual Meeting of the American Educational Research Association (63rd, San Francisco, California, April 8-12, 1979)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Achievement Gains; *Comparative Testing; Compensatory Education Programs; *Criterion Referenced Tests; Elementary Education; *Evaluation Methods; Models; *Norm Referenced Tests; Program Evaluation; *Reading Achievement; Test Validity
IDENTIFIERS *Elementary Secondary Education Act Title I; Normal Curve Equivalent Scores; *RMC Models

ABSTRACT

Two ESEA Title I evaluation models developed by the Resource Management Corporation (RMC), were field tested simultaneously with 560 Title I reading students, grades 2-8. Measuring instruments for models 1 and 2 were, respectively, the California Achievement Test (reading vocabulary section), a norm-referenced test; and the Tarmac Reading Inventory, a criterion referenced test. Both models measured achievement gains in the same sample of students by converting test data into a common metric called normal curve equivalents (NCEs). A 3.5 NCE difference between the models would indicate educational significance. It was determined that, with the exception of grade 2, both models were measuring the same reading skills. Results obtained under both models, although not identical, were within 1 or 2 NCE points of each other; grade 2 was a notable exception (11.7 NCE difference). Results thus support RMC's position that the criterion referenced model is an effective evaluation model and yields comparable evaluation data. It was also noted that the criterion referenced model will result in reduced testing and monetary savings in large school districts. (CP)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED170358

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

AN ANALYSIS OF THE EVALUATION DATA WHEN ESEA, TITLE 1 EVALUATION MODELS A1 AND A2 ARE EMPIRICALLY FIELD TESTED SIMULTANEOUSLY

Owen W. Fish, Madison County Schools

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Owen W. Fish

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

TM008 808

Paper presented at the annual meeting of
the American Educational Research Association,
San Francisco, April, 1979

AN ANALYSIS OF THE EVALUATION DATA
WHEN ESEA, TITLE I EVALUATION MODELS A1 AND A2
ARE EMPIRICALLY FIELD TESTED SIMULTANEOUSLY

Background

Educational evaluation is not a new phenomenon in education, but it is only in recent years that it has become institutionalized. The present status of accountability in our nation's schools can be traced to the passage of the Elementary and Secondary Education Act (ESEA) of 1965. The one significant fact about the legislation was that Title I of this act was the first piece of federal legislation that mandated an annual evaluation of its project activities at the local level, and that an annual written report be forwarded to the federal government.

This federal requirement, to conduct an annual evaluation report in each Local Educational Agency (LEA), has resulted in over one-third of a million Title I evaluation reports during the past twelve years. The history of Title I evaluation efforts suggests that the impact of social programs such as Title I is very difficult to measure. Even though Title I evaluation reports had gone through three different phases during this twelve years, still no satisfactory assessment could be made of the project impact of Title I on a state or national basis, as there was no uniform evaluation design.

Congress recognized the problem, and in 1974 passed legislation that mandated that the U. S. Office of Education (USOE) set up a uniform evaluation and reporting system for Title I. The U. S. Office of Education contracted with the Resource Management Corporation (RMC), in Mountain View California to develop evaluation models for Title I that would comply with the intent of this legislation.

From their research, RMC developed three basic evaluation models. All three evaluation models measured the cognitive impact of a Title I project by converting the test data into a common metric called Normal Curve Equivalents (NCE's). This metric was created by RMC to provide interpretable and sensitive evaluation data at the local level, and also to permit the aggregation of Title I evaluation data at the school, the LEA, the state and the national level.

In doing their research, RMC found that an increasing number of evaluators were interested in using Criterion Referenced Tests (CRTs) to measure the impact of their Title I project. In the development of the three models, RMC designed the models so that each could be used with either normed or non-normed tests.

The entire focus of the evaluation models was to obtain as clear and as unambiguous an answer as possible to the question, "How much more did pupils learn by participating in the Title I project than they would have learned without it?" The underlying assumption was that for a given Title I project all the evaluation models, if properly implemented, would yield identical estimates of the treatment effect of a Title I program.

As RMC had done no empirical field testing, this research takes the most popular of the RMC models, Model A, and field tested both Model A1 (normed test model) and Model A2 (CRT model) simultaneously, using the same Title I students.

METHOD

Subjects

The participants used in this research were the Title I reading students of Madison County Schools, Madison County, North Carolina.

Madison County is a rural county, located in the western part of the state, and has six elementary schools.

A total of 560 Title I students participated in this research, and a breakdown by grade level was as follows:

GRADE	NUMBER OF STUDENTS
2	101
3	110
4	87
5	100
6	84
7	41
8	37

The Madison County Title I program used the "pull out" procedure, and the instructional approach used was the diagnostic-prescriptive approach. The Title I class size varied from a minimum of six students to a maximum of twelve students, and the pull out time ranged from thirty minutes to fifty minutes.

Tests

The measuring instrument for evaluation Model A1 was the Reading Vocabulary Section of the California Achievement test (1977 Edition, Form C), published by CTB/McGraw-Hill Corporation in Monterey, California.

The measuring instrument for evaluation Model A2 was the vocabulary section of the Tarmac Reading Inventory (TRI), published by Tarmac, Incorporated, of Asheville, North Carolina.

Procedure

The procedure of this research was to field test evaluation Model A1, (Norm Referenced Model) simultaneously with evaluation Model A2, (Criterion Test Model), to verify if Model A2 would yield comparable NCE scores to Model A1, utilizing the same Title I students in both evaluation models.

Design

ESEA, Title I Evaluation Model A was the Norm-Referenced Model that consisted of pretesting and posttesting the treatment group, and then comparing the gain with a norm-based expectation. RMC used one-third of a standard deviation (7 NCE points) for assessing practical educational significance. RMC derived the standard deviation of 21.06 for NCEs by dividing the distance from the mean to the 99th percentile (99-50=49 percentile points) by the same distance measured in terms of Normal Curve Deviation units (2.3467-0=2.3267). The result (49÷2.3267= 21.060) yields a scale which includes exactly 98% of the population between values of 1 and 99.

Although RMC uses one-third of a standard deviation for assessing the practical educational significance in the evaluation models, a more conservative figure of one-sixth of a standard deviation (3.5 NCE points) was set for determining educational significance in this research.

Results

TABLE 1

Summary Data For Evaluation Model A1

GRADE	SCALE SCORE MEANS		NCE EQUIVALENT		NCE
	PRETEST	POSTTEST	PRETEST	POSTTEST	GAIN
2	298.33	331.32	26.5	31.3	4.8
3	331.92	365.87	28.3	37.3	9.0
4	352.56	378.49	19.2	25.1	5.9
5	389.44	401.52	24.0	25.5	1.5
6	416.87	444.86	26.5	33.5	7.0
7	424.36	442.82	23.0	26.3	3.0
8	435.40	456.56	20.0	24.5	4.5

TABLE 2

Summary Data For Evaluation Model A2

Grade	Pretest			Posttest					
	Median Raw Score	Standard Score Equivalent of Column 1	Percentile Equivalent of Column 2	Median Raw Score	Standard Score Equivalent of Column 4	Percentile Equivalent of Column 5	NCE of Column 3	NCE of Column 6	NCE Gain Column 8 - Column 7
2	6.50	296	13.04	14.00	359	37.30	26.7	43.2	16.5
3	6.21	331	15.16	12.61	372	25.35	28.3	36.0	7.7
4	6.17	348	5.31	9.13	376	11.32	16.0	24.5	8.5
5	9.68	386	10.34	12.20	402	12.13	23.4	25.6	2.2
6	12.34	413	11.90	17.30	443	12.60	25.1	33.3	8.2
7	10.42	424	10.56	11.90	437	11.86	23.6	25.1	1.5
8	8.66	438	8.55	10.90	463	13.50	21.1	26.8	5.7
Column	1	2	3	4	5	6	7	8	9

TABLE 3

COMPARISON OF NCE GAINS UNDER MODEL A1 and MODEL A2

GRADE	NCE Gain Model A1 Method	NCE Gain Model A2 Method	Difference Between A1 - A2	Difference of Practical Educational Significance
2	4.8	16.5	+11.7	yes
3	9.0	7.7	- 1.3	no
4	5.9	8.5	+ 2.6	no
5	1.5	2.2	- 0.7	no
6	7.0	8.2	+ 1.2	no
7	3.0	1.5	- 1.5	no
8	4.5	5.7	+ 1.2	no

3.5 NCE Points Were Set For Determining Practical Educational Significance

Discussion

With the exception of grade two, which the author considers to be an anomaly, all of the other six grade levels are within the 3.5 NCE variance that was used to designate educational significance at the beginning of this project. Specifically, the NCE difference between the two evaluation models was as follows:

Grade	NCE Difference Between Model A1 and A2
2	+11.7
3	- 1.3
4	+ 2.6
5	- 0.7
6	+ 1.2
7	- 1.5
8	+ 1.2

The results obtained under Model A1 and Model A2, although not identical, are within one or two NCE points of each other, and, in this particular school district, would not lead to significantly different educational decisions. Of the six grade levels, three grades showed Model A2 with a higher NCE gain. Three grade levels showed Model A2 with a lower NCE gain. This gives a distribution around a median of zero.

Grade two in this research was considered an anomaly or inconsistency. A review of reading skills from both tests show that the two test instruments measure the same reading skills, with the exception of the second grade.

RMC emphasized that the normed test and CRT must measure the same reading skills. RMC also states that in the implementation of any of the evaluation models, it was essential to select a test instrument that will measure the curriculum or instruction of the Title I project.

This empirical research supports RMC's position that the CRT's evaluation models will yield comparable evaluation data, and can be used effectively in Title I program evaluations.

In large school districts, that have capable evaluation personnel, Model A2 should be considered, as it can result in a great monetary saving for the school district, as well as reduce the amount of student testing that has to be done in the school districts.

REFERENCES

FAGAN,B.M.& HORST,D.P.Selecting A Norm-Referenced Test,ESEA Title I Evaluation and Reporting System. Mountain View: RMC Research Corporation, 1976.

FISH,O.W.An Analysis of the Evaluation Data When Two Evaluation Models Developed by Resource Management Corporation for Title I of Elementary and Secondary Education are Field Tested Simultaneously.(Unpublished Doctoral dissertation, University of Sarasota, 1978).

HARRIS,J.A.Test Coordinator Handbook for the 1977 California Achievement Test, Monterey: CTB/McGraw-Hill,1977.

POWERS,W.L.TRI Instructor's Management Manual.Asheville: Tarmac, Inc., 1975.

TALLMADGE,G.K.Criterion-Reference Tests,ESEA,Title I Evaluation and Reporting System. Mountain View: RMC Research Corporation,1976.

TALLMADGE,G.K.Interpreting NCE's,ESEA,Title I Evaluation and Reporting System. Mountain View: RMC Research Corporation,1976.

TALLMADGE,G.K.& WOOD,C.T.User's Guide,ESEA,Title I Evaluation and Reporting System. Mountain View: RMC Research Corporation,1976.

AUTHOR

FISH,OWEN W. Address: Madison County Schools, Box 368, Marshall, N. C. 28753. Title: Assistant Superintendent. Degrees: B.S. Western Carolina University, M.A. Western Carolina University, Ed.D. University of Sarasota. Specialization: Educational Administration.